

U.S. Patent Application Serial No. 10/646,818
Amendment filed March 27, 2006
Reply to OA dated December 27, 2005

CLAIMS CURRENTLY PENDING:

Listing of Claims:

1 Claim 1 (previously presented): A method of bending a thin plate in a predetermined
2 direction of a curve deformation by irradiating a laser beam onto the thin plate, comprising:
3 irradiating a laser beam linearly onto the thin plate in approximately the predetermined
4 direction, wherein the laser beam is a combined shape of characters.

1 Claim 2 (previously presented): A method of bending a thin plate using a laser beam,
2 wherein the laser beam is irradiated onto the thin plate to curve the thin plate to a
3 predetermined curvature, wherein the laser beam is a combined shape of characters.

1 Claim 3 (original): A method of correcting a suspension used to mount a magnetic head
2 in a hard disk drive, comprising:
3 either one of or both
4 measuring load on the suspension and obtaining a load adjustment amount from the
5 measured load; and
6 measuring an angle of the suspension and obtaining an angle adjustment amount
7 from the measured angle;
8 defining, by using irradiation shapes in advance, that a laser beam is linearly irradiated

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9 onto either one of or both a load curve portion and an angle adjustment portion of the suspension
10 in approximately the same direction as a curving direction, preparing combinations of irradiation
11 shapes in advance, and selecting an irradiation shape combination corresponding to either one of
12 or both the load adjustment amount and the angle adjustment amount; and
13 irradiating a laser beam based on the selected irradiation shape combination.

1 Claim 4 (original): A suspension correction method of adjusting an angle of the
2 suspension by irradiating a laser beam onto a laser beam irradiation area for correcting an
3 angle in plus or a laser beam irradiation area for correcting an angle in minus, based on an
4 arrangement that

5 the suspension is formed in a thin plate shape as a whole, the header is connected to an
6 outrigger from one end of a head mounting portion via a spring, and the outrigger consists of a
7 curve portion reaching both sides of the head mounting portion, and a linear portion that
8 continues from the curve portion, and

9 an XY axis is set around the head mounting portion, an area I to an area IV are formed on
10 the XY coordinates with the X axis as a gimbal longitudinal direction, and the laser beam
11 irradiation area for correcting the angle in plus or the laser beam irradiation area for correcting
12 the angle in minus is set in the area I and the area III or the area II and the area IV respectively.

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1 Claim 5 (original): A suspension correction method of adjusting an angle of the
2 suspension by irradiating a laser beam onto a laser beam irradiation area for correcting a pitch
3 angle in plus or a laser beam irradiation area for correcting a pitch angle in minus, based on an
4 arrangement that

5 the suspension is formed in a thin plate shape as a whole, the header is connected to an
6 outrigger from one end of a head mounting portion via a spring, and the outrigger consists of a
7 curve portion reaching both sides of the head mounting portion, and a linear portion that
8 continues from the curve portion, and

9 a boundary is provided in a direction orthogonal with a gimbal longitudinal direction
10 around the spring, a first area is formed at the head mounting side, a second area is formed at the
11 opposite side, the laser beam irradiation area for correcting the pitch angle in plus is set in the
12 first area, and the laser beam irradiation area for correcting the pitch angle in minus is set in the
13 second area.

1 Claim 6 (withdrawn): A thin plate that has at least one portion thereof formed in a curve
2 and beam shape, and that has a laser beam irradiation trajectory linearly formed in approximately
3 the same direction as the curve direction.

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1 Claim 7 (withdrawn): An apparatus for correcting a suspension used to mount a magnetic
2 head in a hard disk drive, comprising:
3 either one of or both
4 a load measuring unit that measures a load on the suspension; and
5 an angle measuring unit that measures an angle of the suspension;
6 a laser beam irradiating unit that irradiates a laser beam in approximately the same
7 direction as a curving direction onto either one of or both load correction area and an angle
8 correction area of the suspension, based on either one of or both the load measured by the load
9 measuring unit and the angle measured by the angle measuring unit; and
10 a conveyer unit that fixes the suspension onto a conveyer stage, and conveys the
11 suspension while positioning the suspension on either one of or both the load measuring unit and
12 the angle measuring unit, and the laser beam irradiating unit.

1 Claim 8 (withdrawn): The suspension correction apparatus according to claim 7, wherein
2 the laser beam irradiating unit includes a laser marker, and the laser beam irradiating unit
3 has a storage to store a laser beam irradiation shape according to the laser marker as an
4 irradiation shape.

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1 Claim 9 (withdrawn): A computer program that makes a computer executes:
2 either one of or both
3 defining, by using irradiation shapes in advance, that a laser beam is linearly
4 irradiated onto any one part of a load curve portion of a suspension in approximately the same
5 direction as a curving direction, and preparing combinations of irradiation shapes in advance; and
6 defining, by using irradiation shapes in advance, that a laser beam is linearly
7 irradiated onto any one part of an angle adjustment portion of a suspension in approximately the
8 same direction as a curving direction, and preparing combinations of irradiation shapes in
9 advance; and
10 a selecting step of selecting an irradiation shape combination corresponding to either one
11 of or both the load adjustment amount and the angle adjustment amount obtained from a
12 measured load of a head of a hard disk drive that presses against a disk in the hard disk drive, and
13 using the selected combination to irradiate the laser beam.

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